

**Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20554**

In the Matter of)	
)	
Incentive Auction of Upper Microwave)	AU Docket No. 19-59
Flexible Use Service Licenses in the Upper)	
37 GHz, 39 GHz, and 47 GHz Bands for)	
Next-Generation Wireless Services)	
)	
Comment Sought on Competitive Bidding)	
Procedures for Auction 103)	

COMMENTS OF T-MOBILE USA, INC.

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T-Mobile USA, Inc. (“T-Mobile”)^{1/} submits these comments in response to the *Public Notice* in the above-referenced proceeding that proposes procedures for the incentive auction of the Upper 37 GHz (37.6-38.6 GHz), 39 GHz (38.6-40 GHz), and 47 GHz (47.2-48.2 GHz) bands (“Auction 103”).^{2/}

I. INTRODUCTION AND SUMMARY

T-Mobile applauds the Commission for taking the next steps to release more high-band spectrum and generally supports the auction procedures proposed in the *Public Notice*. The successful implementation of Auction 103 will continue to facilitate the deployment of Fifth Generation wireless (“5G”) technologies in the United States and help promote the Nation’s leadership in advanced wireless services. In order to provide greater certainty to the auction

^{1/} T-Mobile USA, Inc. is a wholly-owned subsidiary of T-Mobile US, Inc., a publicly traded company.

^{2/} See *Incentive Auction of Upper Microwave Flexible Use Service Licenses in the Upper 37 GHz, 39 GHz, and 47 GHz Bands for Next-Generation Wireless Services; Comment Sought on Competitive Bidding Procedures for Auction 103*, Public Notice, FCC 19-35 (rel. Apr. 15, 2019) (“*Public Notice*”).

process and foster bidder participation, T-Mobile requests modest revisions to the proposed bidding procedures for Auction 103.

First, T-Mobile requests that the Commission provide as much information as possible, as soon as possible, to bidders so that they can adequately prepare for the auction. In particular, data file format specifications for the clock phase and assignment phase of Auction 103, including any updates, should be released *before* the filing window for short-form applications closes. The Commission should also, to the extent it is technically feasible, display in the Auction Bidding System information about an incumbent 39 GHz licensee's potential incentive payment credits.

Second, the upfront payments and minimum opening bid amounts for the 47 GHz band should be reduced to reflect the utility of the band relative to the Upper 37 GHz and 39 GHz bands.

Finally, the Commission should make sensible adjustments to its proposed bidding procedures, including (i) adopting a stopping rule that allows Auction 103 to close promptly; (ii) treating missing bids as requests for the same quantity of blocks demanded in the previous round at the current round's clock price or, in the alternative, affording bidders with proactive and automatic activity waivers; (iii) setting the initial clock price increment at a high percentage and maintaining that high percentage for areas in which demand exceeds supply by a large margin; (iv) conducting separate assignment rounds for each of the top 20 Partial Economic Areas ("PEAs"); and (v) requiring the separate submission of preferences for the Upper 37 GHz and 39 GHz bands from the 47 GHz band.

II. PROVIDING TIMELY AND TRANSPARENT INFORMATION TO BIDDERS WILL PROMOTE A SUCCESSFUL AUCTION

A. File Formats Should be Made Available Before the Deadline for Filing Short-Form Applications

The Commission explains that the first phase of the incentive auction will consist of successive clock bidding rounds in which bidders indicate their demands for categories of generic license blocks – Category M/N consisting of blocks in the Upper 37 GHz and 39 GHz bands and Category P consisting of blocks in the 47 GHz band – in specific PEAs.^{3/} Qualified bidders will submit quantity bids for the number of blocks they seek at the clock prices associated with the current round.^{4/} Following the clock phase, the assignment phase will offer clock phase winners the opportunity to bid an additional amount for licenses with specific frequencies.^{5/} In each assignment round, a bidder will be asked to assign a price to one or more possible frequency assignments for which it wishes to express a preference.^{6/}

In order to ensure that bidders are sufficiently prepared to bid in the clock phase of Auction 103, the Commission should release the clock phase data file format specifications, along with sample data files, for the Auction Bidding System upload and download files *prior to* the deadline for submitting short-form applications. In addition, the Commission should ensure that file formats for the assignment phase of Auction 103 are released as soon as possible – preferably before the deadline for submitting short-form applications. Any changes or updates to the file formats for either the clock phase or assignment phase must be

^{3/} See *id.* ¶¶ 28-29, 34.

^{4/} See *id.* ¶ 29.

^{5/} See *id.* ¶ 31.

^{6/} See *id.* ¶ 93.

released as soon as they are made and, in any case, no later than when bidding in that phase is scheduled to begin.

Qualified bidders need information about file formats as soon as possible so that they can understand how the Commission intends to present data, including auction results, during the auction and how bidders can submit bids. Timely information about file formats will also allow for more meaningful participation in any mock auction the Commission plans to conduct, which, in turn, will reduce errors during actual bidding. As the Commission has recognized, the release of specifications for the clock phase bidding system file formats “enable[s] prospective auction bidders to continue familiarizing themselves with the auction process.”^{7/} In addition, as T-Mobile has pointed out and the Commission has observed, winning bidders of multiple licenses have specific needs and preferences for contiguous frequencies and consistent blocks across geographically adjacent markets.^{8/} The sooner the bidders obtain file format information, the earlier the bidders will become comfortable with the bidding process during the clock phase, the easier it will be for bidders to evaluate and convey their spectrum contiguity needs during the assignment phase, and the greater the likelihood of a successful auction.

^{7/} *Clock Phase Bidding System User Guide and File Formats Available for the Auction of 24 GHz Upper Microwave Flexible Use Service Licenses (Auction 102)*, Public Notice, DA 19-118, ¶ 2 (rel. Feb. 27, 2019) (“*Auction 102 Clock Phase File Formats Public Notice*”).

^{8/} See Comments of T-Mobile USA, Inc., AU Docket No. 14-252 *et al.*, at 46-47 (filed Feb. 20, 2015) (“T-Mobile Auction 1002 Procedures Comments”) (discussing the benefits of contiguous blocks of spectrum and the assignment of consistent blocks across geographically adjacent markets); *Public Notice* ¶ 90 (“[B]idders winning multiple blocks of licenses generally will prefer contiguous blocks across adjacent PEAs.”); see also *Expanding the Economic and Innovation Opportunities of Spectrum Through Incentive Auctions*, Report and Order, 29 FCC Rcd 6567, ¶ 513 (2014) (acknowledging that an assignment mechanism “could take into account the need for bidders winning multiple licenses to obtain frequency or geographically contiguous blocks”).

Auction 1002 demonstrates that the Commission is fully capable of releasing file formats for both the clock phase and assignment phase of Auction 103 before the short-form application filing deadline. In Auction 1002, the Wireless Telecommunications Bureau (“Bureau”) established a short-form application filing deadline of February 10, 2016.^{9/} Prior to that deadline, the Bureau released the data file formats for the clock phase of the forward auction on December 23, 2015.^{10/} And revisions made to those file formats were released prior to bidding in that phase.^{11/} Similarly, the Bureau released the file formats for the assignment phase on February 4, 2016 – nearly a week before short-form applications were due and over a year in advance of when bidding in the assignment phase began on March 6, 2017.^{12/}

^{9/} See *Application Procedures for Broadcast Incentive Auction Scheduled to Begin on March 29, 2016; Technical Formulas for Competitive Bidding*, Public Notice, 30 FCC Rcd 11034, ¶ 89 (2015) (announcing that the short-form application filing window closes on January 28, 2016); *Forward Auction Application Filing Window Opens Today at Noon After One-Day Weather Delay; FCC Form 175 Deadline Extended to February 10, 2016*, Public Notice, 31 FCC Rcd 313 (2016) (extending the short-form application filing deadline to February 10, 2016 due to weather delays).

^{10/} See *Wireless Telecommunications Bureau Releases Broadcast Incentive Auction File Formats for Forward Auction Clock Phase*, Public Notice, 30 FCC Rcd 14655 (2015). The clock phase file formats for Auction 1002 were released even before instructions for submitting the short-form applications were released. See *Application Instructions for Broadcast Incentive Auction Scheduled to Begin on March 29, 2016; Instructions for FCC Form 175 Application to Participate in the Forward Auction (Auction 1002)*, Public Notice, 31 FCC Rcd 24 (2016) (releasing short-form application filing instructions on January 19, 2016).

^{11/} See *Wireless Telecommunications Bureau Updates Broadcast Incentive Auction File Formats for Forward Auction Clock Phase, Announces a Bid Upload Feature for all Rounds, and Provides Additional Data on Impairment Data Downloads*, Public Notice, 31 FCC Rcd 2129 (2016) (announcing the release of revised file formats on March 24, 2016); *Wireless Telecommunications Bureau Updates Broadcast Incentive Auction File Formats for Forward Auction Clock Phase, Including File Formats for Bid Upload Feature for All Rounds*, Public Notice, 31 FCC Rcd 6765 (2016) (announcing the release of updated file formats on June 8, 2016); *62 Applicants Qualified to Bid in the Forward Auction (Auction 1002) of the Broadcast Television Incentive Auction; Clock Phase Bidding to Begin on August 16, 2016*, Public Notice, 31 FCC Rcd 7628, ¶ 1 (2016) (announcing the start of bidding in the clock phase in Auction 1002 on August 16, 2016).

^{12/} See *Wireless Telecommunications Bureau Released Broadcast Incentive Auction File Formats for Forward Auction Assignment Phase*, Public Notice, 31 FCC Rcd 934 (2016); *Information Concerning the Assignment Phase of the Forward Auction (Auction 1002), Including Schedule for Practice and Mock*

In contrast, the Commission should not take the approach it did in Auction 102. In that auction, the file formats for the clock phase were released nearly six months after short-form applications were due and only two weeks before bidding began in that phase.^{13/} While the unique relationship between Auctions 101 and 102 required the short-form applications for Auction 102 to be due well in advance of bidding in the clock phase,^{14/} the Commission had months before bidding began in which to release the file formats. Instead, bidders, some of which were still analyzing the results of Auction 101, were left with little time to prepare.^{15/} Moreover, while the file formats for the assignment phase were released three weeks before bidding in that phase began, those file formats were not released until after bidding in the clock phase ended.^{16/} There is no reason the Commission need wait until bidding in the clock phase of Auction 103 is completed before providing that information.

Auctions; Availability of Assignment Phase User Guide and Online Tutorial; Assignment Phase Bidding Begins March 6, 2017, Public Notice, 32 FCC Rcd 1155, ¶ 2 (2017).

^{13/} See *Auctions of Upper Microwave Flexible Use License for Next Generation Wireless Services; Notice and Filing Requirements, Minimum Opening Bids, Upfront Payments, and Other Procedures for Auctions 101 (28 GHz) and 102 (24 GHz)*, Public Notice, 33 FCC Rcd 7575, ¶ 25 (2018) (“*Auctions 101 and 102 Procedures Public Notice*”) (announcing that short-form applications for both Auctions 101 and 102 are due on September 18, 2018); *Auction 102 Clock Phase File Formats Public Notice* ¶ 1 (announcing the release of clock phase file formats on February 27, 2019); *Upfront Payment Deadline and Instructions and Other Dates for the Auction of 24 GHz Upper Microwave Flexible Use Service Licenses (Auction 102); Upfront Payments Due by February 19, 2019; Bidding in Auction 102 Scheduled to Begin on March 14, 2019*, Public Notice, DA 19-24, ¶ 1 (rel. Jan. 31, 2019) (announcing that bidding will begin in the clock phase of Auction 102 on March 14, 2019).

^{14/} See *Auctions 101 and 102 Procedures Public Notice* ¶ 17.

^{15/} See also Comments of T-Mobile USA, Inc., AU Docket No. 18-85, at 4-5 (filed May 9, 2018) (“*T-Mobile Auctions 101 and 102 Procedures Comments*”) (cautioning that bidders participating in both Auctions 101 and 102 need sufficient time between the auctions to evaluate their spectrum holdings and conduct the necessary analyses).

^{16/} See *AUCTION 102: SPECTRUM FRONTIERS – 24 GHz*, FCC, (last updated Apr. 12, 2019), <https://www.fcc.gov/auction/102/education> (including assignment phase file formats that are dated April 12, 2019); *Close of Clock Phase Bidding; Information Concerning the Assignment Phase of Auction 102 (24 GHz), Including Schedule for Mock Auction; Availability of Assignment Phase User Guide and Online Tutorial; Assignment Phase Bidding Begins May 3, 2019*, Public Notice, DA 19-298, ¶ 3 (rel. Apr. 17, 2019) (announcing that the assignment phase of Auction 102 will begin on May 3, 2019).

B. Information About an Incumbent's Potential Incentive Payment Should be Displayed in the Auction Bidding System

The *Public Notice* notes that because the clock phase of Auction 103 will serve as both the forward and reverse portions of the incentive auction, the final clock phase price for a generic block in a PEA will determine the incentive payment for relinquishing spectrum rights in that PEA.^{17/} The Commission explains that an incumbent that both relinquishes the equivalent of a full block of spectrum rights in a PEA and wins a generic block in the same PEA will, in effect, “receive an incentive payment credit equal to the final clock phase price and incur an obligation in the same amount, for a net clock phase payment of zero.”^{18/}

To facilitate bidding by 39 GHz incumbents that choose to bid on new licenses in Auction 103, the Commission should, to the extent possible, display information about the incumbent's incentive payment credits in the Auction Bidding System. That information would enable an incumbent to easily determine its expected return on its relinquished licenses and, as result, make real-time financial decisions and adjustments that would facilitate its decision to continue to bid on new licenses or to receive an incentive payment. The Auction Bidding System can already display information about small entity and rural service provider bidding credits for bidders that have claimed such credits.^{19/} Information about incentive payment credits would serve the same function.

^{17/} See *Public Notice* ¶¶ 1, 38.

^{18/} *Id.* ¶ 39.

^{19/} See AUCTION 102 CLOCK PHASE BIDDING SYSTEM USER GUIDE, FCC, at 33 (last updated Mar. 7, 2019), <https://www.fcc.gov/file/15169/download> (“If a bidder has claimed a bidding credit, the bidding system, by default, displays the requested net commitment (the requested commitment subject to any discounts and bidding credit discount caps).”).

If the Commission adopts this approach, it need not include information about a 39 GHz incumbent's incentive payment credits in the bidder download files. Incumbent 39 GHz licensees seeking to participate in Auction 103 simply need a user-friendly mechanism to determine during bidding the incentive payment they may expect to receive post-auction.

III. THE UPFRONT PAYMENTS AND MINIMUM OPENING BID AMOUNTS FOR THE UPPER 37 GHz AND 39 GHz BANDS SHOULD BE DIFFERENT FROM THE 47 GHz BAND

The Commission proposes upfront payments for a generic block in a PEA based on \$0.001 per weighted MHz-pop for PEAs 1-50, \$0.0002 per weighted MHz-pop for PEAs 51-100, and \$0.0001 per weighted MHz-pop in other PEAs.^{20/} Noting that the proposed upfront payments equal approximately one half of the proposed minimum opening bids,^{21/} the Commission proposes minimum opening bid amounts for a generic block in a PEA based on \$0.002 per weighted MHz-pop for PEAs 1-50, \$0.0004 per weighted MHz-pop for PEAs 51-100, and \$0.0002 per weighted MHz-pop in other PEAs.^{22/}

T-Mobile supports the Commission's proposed upfront payments and minimum opening bid amounts for the Upper 37 GHz and 39 GHz bands. The Commission's proposals are consistent with the upfront payments and minimum opening bid amounts for the auction of other millimeter wave spectrum in Auctions 101 and 102 and are therefore appropriate for the Upper

^{20/} See *Public Notice* ¶ 53.

^{21/} See *id.*

^{22/} See *id.* ¶ 66. Because weights are not yet determined, the Commission lists in Attachment A the MHz-pops of each PEA and the result of multiplying the unweighted MHz-pops by \$0.002, \$0.0004, or \$0.0002 depending on the PEA. See *id.* ¶¶ 65, 66.

37 GHz and 39 GHz bands.^{23/} However, the Commission should not adopt the same upfront payments or minimum opening bid amounts for the 47 GHz band.

To the contrary, the Commission should *reduce* the upfront payments and minimum opening bid amounts for the 47 GHz band to reflect the band’s value relative to the Upper 37 GHz and 39 GHz bands. As T-Mobile has explained and the Commission has recognized,^{24/} the Upper 37 GHz and 39 GHz bands together present a unique opportunity in the millimeter wave spectrum. Not only will the Upper 37 GHz and 39 GHz bands “offer the largest amount of contiguous spectrum in the millimeter wave bands for flexible-use wireless services,”^{25/} but “unencumbered spectrum blocks in the Upper 37 GHz and 39 GHz bands can be treated as largely interchangeable within a PEA.”^{26/}

The 47 GHz band, on the other hand, faces potential operational complications due to potential Fixed Satellite Service use of the spectrum that is different from the Upper 37 GHz and 39 GHz bands. In particular, while the Upper 37 GHz and 39 GHz bands are allocated for space-

^{23/} See *Auctions 101 and 102 Procedures Public Notice* ¶¶ 156, 197, 247. While T-Mobile supports principally using data from Auction 102, and not data from Auction 101, in determining the relative weights for reconfiguring the 39 GHz band, the purpose behind setting relative weights is different from those for determining upfront payments and minimum opening bid amounts. See Comments of T-Mobile USA, Inc., GN Docket No. 14-177 and AU Docket No. 19-59, at 2-3 (filed Apr. 15, 2019) (“T-Mobile 39 GHz Reconfiguration Comments”). Setting relative weights will help rationalize incumbents’ spectrum holdings, impacting the ultimate value of the spectrum relinquished. See *Notice of Initial 39 GHz Reconfiguration Procedures et al.*, GN Docket No. 14-177 and AU Docket No. 19-59, Public Notice, DA 19-196, ¶ 7 (rel. Mar. 20, 2019). In contrast, upfront payments protect against frivolous or insincere bidding, and minimum opening bids are used to accelerate the competitive bidding process. See *Public Notice* ¶¶ 51, 62. Because the upfront payments and minimum opening bid amounts for both Auctions 101 and 102 appropriately served those functions, T-Mobile agrees that the Commission should use the same amounts for Auction 103.

^{24/} See, e.g., Letter from Steve B. Sharkey, Vice President, Government Affairs, Technology and Engineering Policy, T-Mobile USA, Inc., to Marlene H. Dortch, Secretary, FCC, GN Docket No. 14-177, at 2 (filed Apr. 5, 2019); *Public Notice* ¶ 3.

^{25/} *Public Notice* ¶ 3.

^{26/} *Use of Spectrum Bands Above 24 GHz for Mobile Radio Services*, Fourth Further Notice of Proposed Rulemaking, 33 FCC Rcd 7674, ¶ 17 (2018).

to-Earth transmissions, the 47 GHz band is designated for Earth-to-space use.^{27/} In addition, the 47 GHz band's higher frequency location reduces its utility for mobile wireless broadband relative to the Upper 37 GHz and 39 GHz bands. As T-Mobile has observed,^{28/} high-band spectrum can meet certain 5G deployment requirements, but it is propagation-limited. These limits increase the higher the frequency. Therefore, as T-Mobile and others have suggested to the Commission,^{29/} the 47 GHz band should be treated as a separate "product" from the Upper 37 GHz and 39 GHz bands for purposes of the clock phase of Auction 103, and its upfront payments and minimum opening bid amounts should be adjusted accordingly.

IV. THE COMMISSION SHOULD MAKE MINOR ADJUSTMENTS TO THE PROPOSED BIDDING PROCESSES

A. The Commission's Stopping Rule Should Allow for Auction 103 to Close in a Timely Fashion

The Commission proposes a simultaneous stopping rule for the clock phase of Auction 103 under which bidding will end for both categories of licenses in all PEAs after the first round in which there is no excess demand in any category in any PEA.^{30/} The Commission

^{27/} See *Use of Spectrum Bands Above 24 GHz for Mobile Radio Services*, Report and Order and Further Notice of Proposed Rulemaking, 31 FCC Rcd 8014, ¶ 411 (2016) ("Unlike in the 28 GHz and 39 GHz bands, where [Fixed Satellite Service ("FSS")] can use other spectrum to operate user equipment, FSS would have to use some portion of the 47 GHz band to operate user equipment. Sharing between terrestrial mobile and FSS user equipment is more complicated, particularly where FSS user equipment is transmitting.").

^{28/} See Reply Comments of T-Mobile USA, Inc., ET Docket No. 18-295 and GN Docket No. 17-183, at 3 (filed Mar. 18, 2019) ("T-Mobile 6 GHz Reply Comments").

^{29/} See, e.g., Reply Comments of T-Mobile USA, Inc., GN Docket No. 14-177, at 10-11, 12 (filed Sept. 17, 2018); Comments of Verizon, GN Docket No. 14-177, at 16-18 (filed Sept. 17, 2018) (asserting that the Commission should offer 47 GHz band spectrum blocks as a different auction "product" than the Upper 37 GHz and 39 GHz bands blocks because Commission precedent and 3GPP band class development demonstrate that the 47 GHz band is not fungible with the Upper 37 GHz and 39 GHz bands).

^{30/} See *Public Notice* ¶ 49.

acknowledges that “under this approach, it is not possible to determine in advance how long Auction 103 would last.”^{31/}

While the Commission should permit bidding to remain open for both categories of licenses even after there is no longer excess demand in one category, it should take steps to accelerate the closing of Auction 103 under those circumstances. Such an approach would be administratively efficient and limit cases in which, for example, there is excess demand in only one category of license in only one PEA, thereby keeping the auction open for *all* licenses.^{32/} T-Mobile recommends that when there is no longer excess demand for one category of licenses and excess demand in only a handful of PEAs in the remaining category, the Commission increase the number of rounds and/or price increments or take similar measures to accelerate the pace of the auction for the remaining category. That approach will achieve the twin goals of preserving bidder flexibility and bringing the auction to a timely close.

B. Missing Bids Should Not Result in Reduced Bidding Eligibility or the Commission Should Permit Activity Waivers

The Commission states that missing bids, *i.e.*, bids that are not reconfirmed, will be treated by the Auction Bidding System as requests to reduce to a bidder’s demand to a quantity of zero blocks for the category.^{33/} It adds that if such requests are applied, or

^{31/} *Id.*

^{32/} See, e.g., *Auction 102 – 24 GHz: Clock Phase – Product Status*, FCC Public Reporting System, https://auctiondata.fcc.gov/public/projects/auction102/reports/product_status (last visited Apr. 23, 2019) (demonstrating that excess demand in PEA212 (Anchorage, AK) allowed Auction 102 to remain open until round 91, well after bidding had stopped in other PEAs); see also *24 GHz Band Auction Sees Little Change*, TR DAILY (Apr. 15, 2019); *24 GHz Band Auction Bids Climb Slightly*, TR DAILY (Apr. 14, 2019).

^{33/} See *Public Notice* ¶ 60.

applied partially, “a bidder’s bidding activity, and hence eligibility for the next round will be reduced.”^{34/}

T-Mobile urges the Commission to treat missing bids as bids for the previous round’s processed demand at the new round’s clock price rather than reduce the bidder’s demand to zero. Based on the potential number of products available in Auction 103 and because bidders are required to indicate their demands in every round, even if their demands at the new round’s prices are unchanged from the previous round, bidder mistakes may occur. Bidding is further complicated for incumbent 39 GHz licensees that relinquish their licenses and will be required to evaluate, mid-auction, their needs and interests in new licenses versus accepting an incentive payment.

In a traditional simultaneous multiple round auction, the Commission can accommodate errors by providing bidders with activity waivers (both proactive and automatic) that preserve the bidder’s bidding eligibility.^{35/} As the Commission has explained, the Auction Bidding System will “assume that a bidder that does not meet the activity requirement would prefer to use an activity rule waiver (if available) rather than lose bidding eligibility.”^{36/} The Commission should afford bidders participating in the clock phase of Auction 103 the same presumption and allow them to maintain their demand and bidding eligibility when a bid is missing.^{37/} Alternatively, the Commission should provide

^{34/} *Id.*

^{35/} *See, e.g., Auctions 101 and 102 Procedures Public Notice* ¶ 187 (“Activity rule waivers are principally a mechanism for a bidder to avoid the loss of bidding eligibility in the event that exigent circumstances prevent it from bidding in a particular round.”).

^{36/} *Id.* ¶ 188.

^{37/} *See Public Notice* ¶ 61.

bidders with both proactive and automatic activity waivers to allow them the flexibility to maintain their bidding eligibility in the event of an unintentional error.

C. Clock Price Increments Should Be Set High Initially to Account for Areas Where Demand Exceeds Supply

The Commission explains that under its proposed clock auction format, after bidding in the first round and before each subsequent round, the Auction Bidding System will announce a clock price for the next round, which will be the highest price to which bidders can respond during the round.^{38/} The Commission proposes to set the clock price for each category in each PEA for a particular round by adding a fixed percentage increment to the price for the previous round.^{39/} It specifically proposes to set the initial increment between 5 percent and 20 percent and to adjust the increment, on a PEA-by-PEA or category-by-category basis, as rounds continue in order to manage the pace of the auction.^{40/}

T-Mobile recommends that the Commission set the initial increment at a high percentage for all categories in all PEAs to account for the likelihood that demand will exceed supply. In addition, for PEAs in which demand continues to exceed supply by a large margin (*e.g.*, where demand is twice the amount of supply), the Commission should maintain a high increment percentage in subsequent rounds until demand equals supply. Utilizing a high initial increment and maintaining that increment for certain PEAs will ensure that the auction moves quickly. Indeed, seemingly in recognition of its benefits, the Commission has utilized increasingly higher initial increments in its past auctions employing a clock auction format. For instance, the Commission set the initial increment at

^{38/} See *id.* ¶ 69.

^{39/} See *id.*

^{40/} See *id.* ¶ 70.

5 percent in Auction 1002 and increased the initial increment to 10 percent in Auction 102.^{41/}

To the extent that demand is reduced to an amount that more closely reflects supply in a PEA, the Commission would retain the flexibility to lower the increment, alleviating concerns that a higher initial increment would not offer appropriate price choices to bidders. Moreover, because the Commission will allow bidders to submit intra-round bids, there should be little concern that a high increment, whether set initially or in subsequent rounds, would result in bidders committing to a price that is higher than what they would be willing to pay.

D. Separate Assignment Rounds for Each of the Top 20 PEAs Would Be Appropriate, But Are Not Required

The Commission proposes to conduct a separate assignment round for each of the top 20 PEAs and to conduct these assignment rounds sequentially, beginning with the largest PEAs.^{42/} Once spectrum in the top 20 PEAs has been assigned, the Commission proposes to conduct, for each Regional Economic Area Grouping (“REAG”), a series of assignment rounds for the remaining PEAs within that region.^{43/} The Commission notes that it conducted sequential rounds for the top 40 PEAs in Auction 1002 and will follow the same process for Auction 102, but that it is altering its proposal for Auction 103 “in order to further speed up the assignment phase.”^{44/}

^{41/} See *Broadcast Incentive Auction Scheduled to Begin on March 29, 2016; Procedures for Competitive Bidding in Auction 1000, Including Initial Clearing Target Determination, Qualifying to Bid, and Bidding in Auctions 1001 (Reverse) And 1002 (Forward)*, Public Notice, 30 FCC Rcd 8975, ¶ 193 (2015); *Auctions 101 and 102 Procedures Public Notice* ¶ 249.

^{42/} See *Public Notice* ¶ 91.

^{43/} See *id.*

^{44/} See *id.* ¶ 91 n.77.

T-Mobile supports conducting separate assignment rounds for the top 20 PEAs rather than for the top 40 PEAs as the Commission did in Auction 1002 and is currently doing in Auction 102. T-Mobile agrees with the Commission that including PEAs 21-40 in the simultaneous REAG assignment rounds will allow the assignment phase to proceed quickly without adversely impacting bidders.^{45/} In fact, the Commission could even proceed with conducting assignments based on REAGs without assigning the top 20 PEAs first.

As T-Mobile pointed out in Auction 1002, the assignment of the same channel in geographically adjacent markets can offer several benefits under some circumstances.^{46/} However, acquiring the same channel in adjacent markets is less necessary for millimeter wave spectrum than it was for the low-band spectrum that was offered in Auction 1002. T-Mobile has explained, and the record in the millimeter wave and other proceedings has made clear, that there are differences between low-band and high-band spectrum.^{47/} Because low-band spectrum supports wide-area coverage, it is useful for licensees employing that spectrum to be licensed for the same frequency assignments in adjacent markets so that they can take advantage of, among other things, cross-PEA coverage. High-band spectrum, on the other hand, will offer greater capacity but reduced coverage, reducing the economies of scope and scale that would be derived from having the same channel in adjacent PEAs.^{48/} When weighing those needs with the

^{45/} *See id.*

^{46/} *See* T-Mobile Auction 1002 Procedures Comments at 47-48 (explaining that assigning the same channel in geographically adjacent markets reduces the need for licensees to negotiate power flux density limits at the border, allows for less complex and more reliable inter-cell handoff at the license boundaries, and permits a somewhat more efficient handset design).

^{47/} *See, e.g.,* T-Mobile 39 GHz Reconfiguration Comments at 4; T-Mobile 6 GHz Reply Comments at 3.

^{48/} *See* Neville Ray, T-Mobile Blog, *The 5G Status Quo is Clearly Not Good Enough* (Apr. 22, 2019), <https://www.t-mobile.com/news/the-5g-status-quo-is-clearly-not-good-enough> (explaining that

opportunity to speed up the assignment phase, T-Mobile supports speeding up the assignment phase to allow the more rapid deployment of 5G services.

E. Frequency Preferences for the Upper 37 GHz and 39 GHz Bands Should be Submitted Separately from the 47 GHz Band

The Commission proposes that a bidder will submit its preferences for blocks won in the Upper 37 GHz and 39 GHz bands and the 47 GHz band separately, rather than submit bids for preferences that include blocks in both categories.^{49/} For example, if a bidder won one block in Category M/N and two blocks in Category P, it would not be able to submit a single bid amount for an assignment that included all three blocks.^{50/}

T-Mobile agrees that a bidder should submit its preferences for the Upper 37 GHz and 39 GHz bands separately from the 47 GHz band. As discussed above, differences between the Upper 37 GHz and 39 GHz bands and the 47 GHz band warrant treating those bands as separate “products” for purposes of the clock phase of Auction 103. For similar reasons, the Upper 37 GHz and 39 GHz bands should be treated separately from the 47 GHz band during the assignment phase. Indeed, the Commission utilized the same approach in Auction 102 for the upper and lower segments of the 24 GHz band,^{51/} which it recognized may be valued differently by bidders.^{52/} While a winning bidder should be permitted to submit bids on both categories

millimeter wave spectrum “will never materially scale beyond small pockets of 5G hotspots in dense urban environments”).

^{49/} See *Public Notice* ¶ 93.

^{50/} See *id.*

^{51/} See *Auctions 101 and 102 Procedures Public Notice* ¶ 275 (“A bidder will submit its preferences for blocks it won in the upper and lower segments separately, rather than submitting bids for preferences that include blocks in both segments.”).

^{52/} See *id.* ¶ 219 (“The upper and lower segments of the 24 GHz band are separated spectrally and offer various possibilities for aggregation of multiple contiguous blocks, which may cause bidders to value them differently.”); see also T-Mobile 39 GHz Reconfiguration Comments at 2-3.

during the same round in the assignment phase, it should not be allowed to submit preferences for the Upper 37 GHz, 39 GHz, and 47 GHz bands together in one bid.

V. CONCLUSION

Auction 103 represents a valuable opportunity to bring a substantial swath – the largest in Commission history – of millimeter wave spectrum to market. It is therefore critical that the procedures adopted for the auction are carefully crafted to ensure a successful outcome. T-Mobile requests that the Commission promptly take the actions outlined above. Doing so will not only maximize bidder participation, but, more importantly, will ensure that the benefits of next-generation wireless services are fully realized by the American people.

Respectfully submitted,

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